The Distance Learning Agenda: University Organization and the Changing Nature of Work In Post-Secondary Institutions

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October 31, 2000

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Executive Summary

There is a growing awareness that internet-based technologies will significantly alter certain aspects of post-secondary education. Many research universities (R1, R2) have undertaken major programs to address the demands from students and faculty for innovative teaching and learning strategies exploiting advanced technologies. This paper will focus on the changes to the institution that accompany a shift from traditional classroom-based university level teaching at the both the graduate and undergraduate levels to technology enhanced classroom activities and on-line learning delivery. Secondly, I will address issues of work and compensation from the perspective of distance learning courseware development and delivery.

Institutions in Canada and other countries with highly developed post-secondary institutions have undertaken many steps to provide new services and resources for the benefit of academic staff. Initiatives such as the Learning Commons at the University of Calgary, the Academic Commons proposed by a Provostial Task Force at the University of Toronto, the Centre for Educational Technology at McGill University, and SUITE (Soutien à l'utilisation de l'Internet et des technologies dans l'enseignment) at the Université de Montréal, indicate that the necessary re-organization and budgetary re-allocations are in progress in Canada. In the US, there are very substantial initiatives, some of which include the carving off of for-profit companies. At Columbia University these has led to the formation of Columbia Media Enterprises L. L. C, a wholly owned arm of the institution charged with development and courseware delivery.

The organizational models of traditional universities have provided a kind of bottom up process whereby professors initiate new courses or programs and the approval process works up the chain from department to faculty to academic curriculum committee to final approval by the Academic Vice-Principal. This process rarely addresses in full the impact of new programs on the enterprise and should be replaced by new structures. I propose a more integrated model in which academics, IT departments, marketing and service groups work in an integrated fashion with a strategic planning unit as the focal point.

A key aspect that has only begun to receive adequate attention is the issue of on-line library resources. While it may be possible for community college level instructors to embed sufficient on-line information in support of the learning process, it is highly unlikely that the resources required for advanced undergraduate or graduate study exist in digital format today. Of the all the issues facing universities embarking on comprehensive distance education programs I would strongly suggest that the inevitable shift from centralized book repositories to global, distributed on-line learning resource centers be accelerated.

Faculty attitudes toward distance learning are being shaped by the availability and quality of technical resources, training and support and by the institutional attitudes toward compensation. In general, most faculty feel positive about distance learning (72%) yet at the same time most believe that they will have to do more work for the same rates of compensation. It is also evident that the ratio of full-time, tenured faculty to part-time and adjunct instructors is shifting dramatically. For profit virtual universities are capitalizing on this by hiring a few key full-time staff augmented by large numbers of part-time staff paid on a per-course basis. The shift results from the need to manage costs effectively but also from the different mode of course delivery inherent in distance

learning. The efficiencies of large undergraduate classes enjoyed by traditional university methods cannot achieved with the very high (1:10) ratio of instructor to student needed to provide for the academic needs of a remote student body.

The development of distance learning capabilities must be accompanied by a strong Information Technology infrastructure. In order for the technological resources to remain fully integrated with the academic mission and institutional objectives, it is advisable that a senior executive such at the Vice-President level be appointed. The VP – IT must assume responsibility for all technical issues including courseware development. Most important the VP must assume responsibility for the development of digital library resources. It is also recommended that the institution recognize the need for fully integrated data and e-commerce solutions to provide academic and other student services at a level commensurate with those available to on-campus students.

Introduction

There is a growing awareness that internet-based technologies will significantly alter certain aspects of post-secondary education. Many research universities (R1, R2) have undertaken major programs to address the demands from students and faculty for innovative teaching and learning strategies exploiting advanced technologies. This paper will focus on the changes to the institution that accompany a shift from traditional classroom-based university level teaching at the both the graduate and undergraduate levels to technology enhanced classroom activities and on-line learning delivery. Secondly, I will address issues of work and compensation from the perspective of distance learning courseware development and delivery.

Scope of the Issues: Activities at other institutions

There are numerous compendia of distance learning activities in Canada and worldwide [Lewis et al, 1998] and [Massey and Curry, 1999] among other studies listed in the References However, the following brie. descriptions of recent activities at selected institutions will serve as a starting point for this report. I have selected some well-known institutions and refer directly to reports and documents (many of which are internal and not yet part of the public record) to illustrate that profound changes in the organization of post-secondary institutions are occurring. These changes are necessarily accompanied by dramatic budgetary commitments that are altering the traditional structures of university management.

University of Alberta
The University of Alberta has recently received a grant of nearly $13M from Telus (Alberta Bell) for a new building devoted soiely to innovation in communications, teaching and learning, and professional development. UofA has mobilized many highly trained professionals from education, instructional design, computer science and other disciplines to mount a concerted and unified approach to technology enabled learning within the UofA campus and outside. The Telus center will also function in close cooperation with business and industry to develop professional training software.

University of British Columbia
The University of British Columbia has many successes in the distance learning arena. The hiring of Prof. Tony Bates from the British Open University has led to a coherent, well-managed "distance education" program. This program benefits from the innovative software group in Computer Science that developed the widely used authoring tool, WebCT. This authoring package has been adopted at many universities and is gaining increasing acceptance at worldwide.

University of Calgary
The University of Calgary has recently opened a centrally funded unit, The Learning Commons. This unit draws together specialists in teaching pedagogy and instructional design with advanced communications expertise and key personnel from distance education units. Opened in September of this year, the Learning Commons is poised to lead the University of Calgary's efforts in technology enabled learning.

McGill University
McGill has formed a new unit, the Centre for Educational Technology, within the Instructional Communications Centre (responsible for A/V and media services). The mandate for CET embraces four main themes: 1) to provide the resources necessary for professors who wish to adopt appropriate technology to improve teaching and learning, 2) to provide teaching improvement services in cooperation with the Centre for University Teaching and Learning, 3) to provide full services for the conversion of individual courses and full programs for distance education delivery, and 4) to conduct new media research, development and implementation. In the fall of 2000, McGill will also open an Office for Distance Learning charged with the business operations of marketing, contracts and licensing of learnware, and forging agreements with external agencies.

Université de Montréal
UdeM has completed a internal study, [Giroux, 1999] that describes a new centre – "SUITE" – to address governance and service issues in the development and delivery of technology enhanced learning materials. This initiative has identified new requirements for UdeM for administrative and operational capabilities. SUITE (Soutien à l'utilisation de l'Internet et des technologies dans l'enseignment) forms a comprehensive organizational structure reporting to the Vice-rectrice à l'enseignment and functioning in direct cooperation with the computing and informations systems group.

University of Toronto
The Information Commons at the University of Toronto focuses more directly on IT based student services offering a spacious, modern walk-in facility in the main floor of the Robarts Library. It is designed to provide students with a wide range of information technology access and guidance. Like Calgary, the Information Commons also provides a high-technology training and development group for faculty projects. Projects in the development group range from courseware implementation to advanced 3D and virtual reality modeling capabilities.

A report dated April 2000 outlines a much more comprehensive plan at UofT that will encompass a number of university-wide initiatives. The Report of the Provostial Task Force on Academic Computing and New Media recognizes through a series of key recommendations that the development of technology-enhanced teaching and learning capabilities must also include a repositioning of the university library system. The first recommendation, in fact, is,

> That the University change the name "University Library System to "University Library and Academic Resource Centre". It will include:
> - Academic Commons
> - Information Commons
> - Digital and Print Library

University of Toronto's assertion that a transformed library system must play a central role in the technology enhanced learning initiative has been faintly echoed in other university planning documents. However, in the UofT Task Force report we see *an explicit recognition and set of*

actions to reposition the library as a technology driven digital resource center for academic development. I will return to the crucial matter of libraries shortly.

Initiatives in the U.S.
The situation in the United States is even more compelling. Some of the top-ranked institutions such as Stanford, Harvard, MIT, Cornell, Penn. State, UC Berkeley to name a few have been running or are mounting large-scale efforts to address the structural changes in post-secondary education they believe are inevitable. In fact, the new initiatives in internet-based teaching and learning from these prestigious schools make press in the New York Times and the Financial Post. (I doubt that our dailies are finding Canadian efforts so compelling.)

MIT and Stanford
MIT has formed CAES (Center for advanced educational services) which is developing technology enabled learning materials for use on-campus and for off-site distribution. To enlarge this effort, MIT has recently signed and agreement with Microsoft to undertake a massive library digitization project. Like UofT, MIT has recognized that the quality of the digital library holdings must be a central concern.

Perhaps most surprising is that Stanford University has been delivering science and engineering course into bay-area companies via closed-circuit video for nearly fifteen years. The Office of Distance Learning at Stanford has been responsible for this financially lucrative operation and is now diverting effort and profits from "low-tech" solutions to full-fledged, multimedia solutions. The 1998 announcement of an on-line Stanford Master of Electrical Engineering degree has caused other science and engineering schools to re-examine their position in this high-demand area.

These two leading institutions have chosen to form in-house efforts without seeking external partners. Nor have they formed for-profit separate ventures, as has been the case at New York University and Columbia (among others).

Columbia University
Perhaps the most comprehensive initiative within a private university is occurring at Columbia University. Within the context a new enterprise for technology transfer, the university has formed Columbia Media Enterprises L. L. C. as,

> "...a wholly owned entrepreneurial arm of Columbia University. The immediate goal of CME is to create and implement a coordinated strategy that maximizes the productive use of intellectual capital of the University in the New Media market place..."

This initiative embraces three distinct components: Columbia Online (content, marketing and delivery), Columbia Technologies (licensing) and Columbia Ventures (business incubation). These groups will be presented through Fathom.com, a commercial web presence. They will also work hand-in-hand with the Columbia Center for New Media Teaching and Learning, an on-campus faculty development center.

Virtual Universities

The corporate universities such as Phoenix, Western Governor's pose another approach based primarily on large-volume undergraduate degrees and technical instruction. The success of these ventures requires careful monitoring over the next five years as to date no significant profits have been realized. In fact, after two years of investment, development and aggressive marketing, WGU attracted less than 100 registrations in September 1998.

Since 1998, these initiatives have been mirrored by the emergence of several other "commercial virtual universities". Among these is the important announcement by the Secretariat of Universitas21, a collection of 18 similar universities worldwide, that a new venture will be formed with entrepreneur and publishing magnate Rupert Murdoch. A report published in the Chronicles of Higher Education describes the initiative as follows:

> Mr. Murdoch said the new company would begin offering custom-designed academic programs over the Internet next year. They would be aimed at college graduates who are already working, and would lead directly or indirectly to the awarding of degrees and diplomas by Universitas 21.
>
> The company, he said, "has taken a strategic decision to enter the distance-learning market using our global distribution platforms, our advanced technologies, and our marketing reach." he said. "A mutually profitable partnership between leading providers in higher education and one of the world's leading media companies is a very strong proposition."
>
> Geoffrey Maslen, June 2, 2000.
> Chronicles of Higher Education

This proposed international cooperation of 18 leading universities with a powerful, global publishing enterprise should be an indication that higher-education is no longer "business as usual" but entering a new and highly competitive phase based on the global reach of the internet.

Discussion

From the few examples I have selected it is clear that, institutional re-organization and new investments in human and capital resources have been made and will continue to be made at many important post-secondary institutions worldwide.

Three primary business models have emerged to address these demands:

1. Internal re-organization and re-allocation of budgets

Predictably, the first case is the most common model within publicly funded universities. This model is the most prevalent in Canadian institutions, as there is no adequate history of successful (or socially tolerable) alliances between our public universities and for-profit commercial enterprises.

2. University-Business ventures and partnerships

The partnership model is emerging rapidly among private institutions. Columbia University and New York University have forged new, for-profit enterprises wholly owned by the institution while the Rupert Murdoch plan to partner with the 18 members of Universitas21 (and with Microsoft as a technology provider) illustrates a public-private model.

3. Commercial, Virtual universities

The Apollo Group's "Phoenix University" and Western Governor's University (WGU) illustrate the most extreme case where entirely new, entirely virtual degree-granting institutions are being formed using for-profit business models and little or no hesitation to work hand-in-hand with other commercial ventures. This last group has earned the derisive name - "digital diploma mills". (I will not embark on the pros and cons of these or enter into David Noble's tirade against on-line learning in this paper but the reader should be aware that very heated opposition to these on-line, venture capital inspired universities exists.)

University Organization

In this section I will examine university organization first as it exists in the traditional academic model echoed by countless post-secondary institutions and second, as it would have to be renovated to accommodate a large-scale shift to on-line delivery of academic programs. The second part will consider the three primary business models described above with an emphasis on the first model, in-house restructuring with little or no external partnering. It should be noted, however, that the organization needed to effectively deliver courses on-line looks much the same as that needed to shift from traditional lecture-style classes to wide-scale technology enhanced learning methodologies.

The Current State

The traditional academic process.

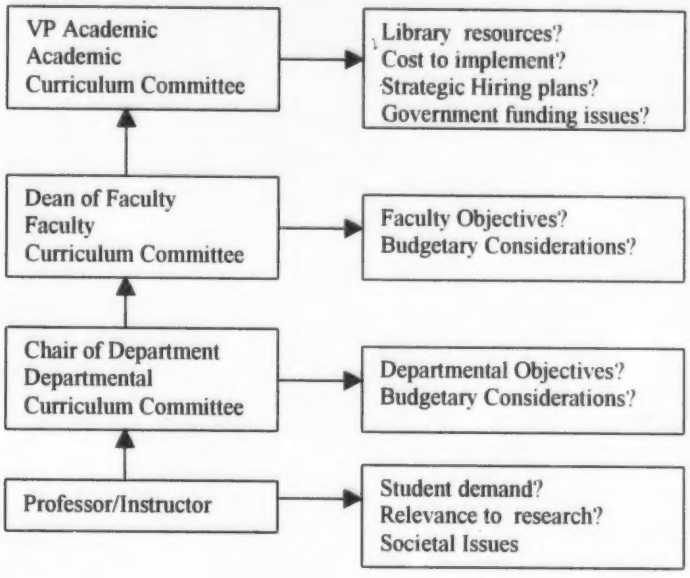
We can consider the traditional academic process as being "bottom-up". Courses and curricula are initiated at the Departmental level (History, for example) in response to the normal flux of knowledge, replacement and renewal of faculty, new modes or topics of research and certain external factors including societal demands. A new course or program is defined by the teaching unit, approved by the departmental committee, passed for approval to a Faculty committee (Arts) passed again to a University curriculum committee and ultimately signed off by the Vice-President, Academic.

Along this simple vertical route are some checks and balances such as classroom availability and/or renovations, laboratory resources, acquisition of additional books and journals, calendar descriptions, credit assignment and, eventually, integration of the course into the student information system.

Of late, the question of accountability has played a greater role but historically, the academic approval process has been based primarily on intellectual and scholarly merit. Rarely is the full

impact of curricular change examined on a rigorous cost-benefit basis at the Faculty or institutional level.

Traditional Course/Program Approval Cycle



We can see that the flow is largely one way with each level normally considering only local issues. In most cases, this process is appropriate when a) the professor is already in place b) the space/classroom issues are readily resolved and c) a modest tweak to the library acquisitions process is invoked.

Once the course or program is in place and populated by students, there are few if any mechanisms beyond student course evaluations to provide in-depth assessments of the value, quality, usefulness and cost-effectiveness of the course. Even programs such a Bachelor of Engineering that requires professional accreditation cannot be closely monitored. In short, it's a one-way street with new courses and programs added to the calendars annually in the absence of a full, enterprise-level accounting.

Can this system support technology-enhanced learning and on-line learning?

To answer this question we must first examine the requirements for the development of on-line learning environments. The requirements posed below are rarely addressed in the vertical academic process shown above. Many of the functions may not even exist or, at best, reside in support/service units outside the academic approval path. As a point of departure, the following quote from Diana Oblinger, a systems integrator with the e-learning sector of IBM, indicates that current organizational structures may not be adequate:

> "Few institutions will be able to create a distributed learning environment overnight. Institutions will differ in their goals and will have different starting points for distributed

learning initiatives, so components need to be separable. If for no other reason than expense, distributed learning initiatives tend to be implemented in phases. Separate components, no matter when they are brought on-line, must be able to work together. When snapped together, these components must function in an integrated manner." [Oblinger, 1999, p.8]

What are these functions that need to "snap together? As a starting point, I borrow the following from Tony Bates at UBC.

Roles for 'electronic' educational institutions

The critical roles of an 'electronic' educational institution built to meet the learning needs of the 21st century will be as follows:

- to provide information on education and training needs and opportunities;
- to provide quality control;
- to provide accreditation, through independent assessment of learning;
- to develop coherent curricula, where appropriate;
- to broker and validate courses and materials from other education and training suppliers;
- to make it easy for teachers and learners to use communications technology to import and export multimedia learning materials;
- to network learners and instructors;
- to create high quality educational multimedia materials in an easily accessible form;
- to conduct research into education and training needs;
- to apply new technologies, as they develop, to education and training, and to evaluate their use.

Bates, T. "Strategies for the Future" http://bates.cstudies.ubc.ca/strategies.html

While this list alone far exceeds the resources on-hand for the mounting of new courses in the traditional classroom setting, Bate's focus is somewhat course-centric. In order to meet *all* the needs of the remote student I would add several more crucial elements:

Systems Integration requirements for 'electronic educational institutions':

- to provide a complete, web-accessed digital library system that can provide the equivalent level of reading and research materials as the traditional print library;
- to provide a fully integrated enterprise information system including, financial information system, human resources information system and student information system;
- to provide web-access to all student functions including: student aid, personal counseling, book store, computer supply stores;
- to provide web-based student governance through on-line correspondence, group chat spaces, on-line elections, information broadcasts;
- to provide a full suite of educational services and alternative learning resources for students with disabilities.

To summarize I would pose the following "axiom" for the development of a fully integrated "e-university":

> **Educational and support functions that constitute the normal activities of an on-campus student must be provided, whenever possible, through web-based technologies.**

It should be immediately apparent that the traditional, publicly funded university cannot satisfy this axiom without undergoing a cataclysmic change in governance, organization and budget management. By far the most difficult requirement is that of providing digital library resources. This problem is so acute that it deserves a brief diversion.

The Digital Library Question

A complete examination of this question far exceeds this short position paper. However, there are some statements and initiatives that bear repeating in the context of institutional organization.

First, I am compelled to comment on the absence of the digital library issue from a key document. In [Gandel, 2000], the author correctly puts faculty development, support and training along with distance learning and e-learning environments in the top 3 slots of his "Top 10 IT Challenges of 20000". Yet there can be little doubt that the separation of libraries and IT services as exists in many institutions cannot be sustained and in my opinion, should rank first of ten.

This fact was clearly recognized by the President of Harvard University in his 1996 Commencement Day Address. The talk focused on Harvard's library system – the largest of its kind in the world – and how in 1876, then Harvard President Charles Eliot addressed head-on the vital role that the library should and would play in a major research institution. Rudenstine states that we face remarkably similar issues in 1996.

> "... the Internet and its successor technologies will have the essential features of a massive library system, where people can roam through the electronic equivalent of book stacks, with assistance from the electronic equivalent of reference librarians...." [Rudenstine, 1996].

What I am advocating is that the "massive library system" must be built sooner rather than later. The initiatives at MIT for example to build a fully digital library point to a wholly new notion of the library not as a highly centralized repository of print materials, but rather as a distributed, location-less on-line resource. To achieve this will require a complete and total reversal of the stranglehold the commercial publishers of textbooks and scientific journals currently have over all our public and research libraries. The Canadian Foundation for Innovation initiative wherein 64 Canadian libraries will spend in the order $50M to acquire access rights for five years to a limited collection through a national site-licensing program represents an important step in the right direction. But it is merely a drop in the bucket in light of the digitization and cataloguing of the complete holdings of a major library such as the Robarts Library at University of Toronto, or even more daunting, the entire library system at Harvard University.

Model Organizational Plans

I have tried to establish above that, in general, the structures, resources and services of traditional universities are wholly inadequate for large-scale distance learning initiatives. What organizational structures would be more appropriate? Can they be implemented within the governance and budgetary structures of traditional universities? Can partnerships alleviate some of the hurdles?

Centralized vs. de-centralized management

Most large universities (10,000 or more students with graduate programs) are highly decentralized. While this promotes efficiencies at the local level (faculty, department, non-academic unit), highly decentralized institutions cannot easily establish long-term strategic planning nor can they support integrated decision making of the kind needed to build and manage the requirements for electronic educational institutions as described above by Bates and the author. There exists a tremendous tension between the content providers (professors) and the infrastructure providers (central administrative units) and this tension can only be resolved by replacing (or at least augmenting) the traditional vertical structures with new management structures and modes of communication. That is, to achieve fully integrated procedures, deans, chairs, senior managers, and the top university executive must participate directly in all parts of the institution's decision making processes. Admittedly, this would be very difficult to achieve within the traditional university governance structures.

Another key factor with respect to centralized services is the total cost of operation. At present, the fallout from years of decentralized management, is a costly replication of services and capital resources. While it may have been "fun" a decade ago to build and manage local information systems (servers, databases, e-mail systems, web sites) the complexity and sophistication of these systems has led to an increase in capital costs and to skyrocketing personnel costs. This problem is exacerbated by the global shortage of qualified IT professionals and the industry's impossible salary demands.

Furthermore, the idea that professors should become professional learnware/new media developers in a kind of distributed software development utopia is a fool's game. Professors and instructors are engaged for their subject expertise; diverting large fractions of their time from "content" to "container" providers is an unacceptable use of expertise. The challenge is for IT to provide centralized course management systems that expedite the submission and maintenance of course materials. However, large-scale enterprise portals are relatively new and not well understood within the university context.

An Alternative Organization Scheme

Using the requirement posed above, we can imagine a new organizational plan that is much less vertical; a plan that promotes interaction, feedback ad team decision-making. For the moment, I will focus on the undergraduate program. The following diagram illustrates a possible organization emphasizing Strategic Planning as the pivotal component.

(org chart here)

Discussion

The model described above could be implemented with some of the pieces residing outside of the institution. For example, the entire Information Services Group could be out-sourced or carved off into a separate enterprise with the freedom to pursue other commercial activities. I would venture that the notion of "privately held library collections" will soon be an anachronism and that digital library resources will soon be accessed from external providers. Similarly the courseware production teams could reside outside of the institution although this function must be very responsive to the academic needs of the professor/instructor and to the dynamics of student usage. Ideally, the expertise (but not the systems) would be located within academic units – providing "just-in-time" training and support intervention as needed.

Are the traditional, publicly funded Canadian universities able and willing to address such radical restructuring? This is highly unlikely given that for most, the primary mission remains to educate and serve a large population of on-campus students. Furthermore, the notions presented above have been predicated on an undergraduate university. Adding a large, complex graduate research element changes the picture substantially. One simply cannot have a biomedical Ph.D. candidate or post-doctoral fellow working "on-line" – at least not in the foreseeable future.

It has been argued that the delivery of undergraduate degree programs should be completely separated from the research institutions resulting in two kinds of universities. While there are certainly very successful undergraduate-only institutions, especially in the U.S., the de-coupling of leading-edge research from the undergraduate experience may diminish the quality and depth of many undergraduate programs.

These issues pose very difficult hurdles to the development of high-quality, cost-effective distance learning. It is true that, "large autonomous, single-mode, post-secondary institutions are still the most cost-effective means of providing standard education to large numbers of students", [Lewis et al, 1998, p.3]. But it is not at all obvious that the appropriate business model for a full-scale on-line learning initiative can be grafted on to our traditional post-secondary institutions.

Impact on Work

The previous paragraphs have focused on organizational matters and appropriate business models. The re-defining of the traditional university governance structures will have a profound impact on the employees, both academic and non-academic. I have alluded to the mismatch that exists today between "content" and "container" provider and this deserves a few more comments here.

We see at McGill and other large, diverse research universities, pockets of technology-enhanced teaching and learning initiatives. (I recently received an "urgent" call from an eminent cardiologist in the Faculty of Medicine imploring me to see his "fabulous cardiology web-site"! While it was better than average and appeared to have some carefully considered instructional value, it was clearly the product of an amateur software development team. I was tempted to propose that IT open a bypass service bureau.) These semi-autonomous pockets (often with external budget resources) are not subject to uniform quality control mechanisms and result in

uneven styles and configurations. More important, they represent a dilution of the work (teaching and research primarily) the institution expect academics to achieve.

We find a key statement regarding the rationalization of the work force in the section on *Organizational Innovation and the Reorganization of Work* in Betcherman and Lowe's, *The Future of Work in Canada,* that reflects the fears among the growing cadre of non-tenured, part-time instructors in the university and college systems,

> On the human resource front, rationalization is often manifested in one of two employment systems. The first is a "core-periphery" system in which employers rely primarily upon a "core" of experienced and skilled employees augmented, as needed, by a pool of inexpensive, non-standard "periphery" workers. The second is a "lean" system, characterized by the out-sourcing of non-core functions, a process that has contributed to the rapid growth of small firms. Polarization is a potential result of both strategies, with clear distinctions in earnings, benefits, working conditions, and access to training between "core" employees and an outer circle of either casual workers or subcontractors." [Betcherman and Lowe, 1997, p.35]

The move to increase the number of employees in the "outer circle" in many of the larger universities will be amplified significantly if large-scale distance education programs are implemented. There are three primary reasons why this is so,

- The ratio of instructors or teaching assistants to on-line registered students is considered to be normally, 1:10 or at most, 1:15. The efficiencies of large undergraduate classes with 200 or more students per professor and a few graduate students to serve as markers are completely lost in this format of teaching. Hence, we can predict a substantial increase in part-time academic employees.

- Faculty generally resist the notion of re-training. Tenured professors with substantial research activities may express a superficial interest in the development of their own web-based courses but once they realize that these are difficult and very time-consuming skills to master, most return to their real work – research, graduate mentoring and undergraduate teaching. It is unlikely that they can or should be "re-trained" to become high-priced new media developers.

- The re-usability of fully constructed, web-based teaching materials means that courses developed by distinguished professor A, can be re-given by a cadre of lesser lights. This is exactly the fear that Noble and others describe. Course content may be acquired by an institution for multiple use through a simple revision to the Intellectual Property clauses of the university statutes. Once acquired, the university may have the right to give the course any number of times and with any designated instructor(s). Hence, there is a real possibility that a new cadre of "course delivery staff" may be hired and these most certainly would lie outside the "core" employee group.

We can see the possible impact of these issues in the following excerpt from the Chronicles of Higher Education,

> *The Changing Nature of Work*
> Tenure, Part-time, Changing work roles
>
> "Most universities, in any event, have responded to cost pressures not by switching to term contracts, but by hiring large numbers of part-time and adjunct faculty, with salaries typically in the range of $2,000 a course. These faculty now represent more than 40 percent of all college instructors. When the question of educational quality is considered in these terms, tenure tends to fare better in the mainstream press. Brent Staples's June 29 *New York Times* editorial is a case in point. While endorsing the notion that tenure has grown too costly, Staples criticized the "lack of stability" inherent in an adjunct faculty and hoped that universities will arrive at a "midpoint" between the two employment models." [Karaganis, 2000]

The combination of cost pressures, increased enrollments, increased base salaries for "star" research professors, increased capital costs (driven primarily by IT) and an increase in the student to instructor ratios in the distance mode model will certainly lead to re-consideration of hiring and compensation practices.

But how do full-time faculty feel about these changes? There has been a major study conducted by the National Education Association, *A Survey of Traditional and Distance Learning Higher Education Members*, that provides many interesting data sets regarding work loads, compensation and general attitudes toward distance learning. I have extracted some key bullets about the faculty body and their attitudes toward distance learning.

- Most are tenured (89%) and full time (73%)
- More are likely to hold Masters (not Ph.D.) and to teach in multi-campus community colleges
- Most (73%) rate technical and library support to be excellent (Note 1, below)
- Most (72%) hold positive feelings for distance education (vs. 14 % negative)
- Most believe that faculty will do more work for the same pay but that they will be fairly compensated for their intellectual property
- Most believe that they will be hurt financially
- Most (70%) participate in distance learning training (Note 2, below)
- Most believe that the level of technical support is the most important determinant of overall feeling for distance learning
- More than half (53%) spend more time developing course materials for distance education compared to traditional courses (Note 3, below)
- Most (84%) get no course load reduction for the additional hours they spend on distance course development (Note 3, below)

Note 1:
The scope of library materials needed for community college level courses differs significantly from university undergraduate or, more dramatically, graduate and professional level courses. I doubt that full-time faculty at McGill, for example, would consider the on-line library holdings "excellent" or even adequate for distance education teaching.

Note 2:
I suspect that community college professors who have no formal research mandate are much more amenable to training than full-time, tenured faculty in research intensive institutions.

Note 3:
There is no doubt that the preparation and delivery of distance education courses take more time than traditional classroom teaching. One of the challenges is how to compensate full-time faculty for the extra effort. This challenge is compounded by the necessity to separate course development time from course delivery time. Several possibilities exist,

- Compensate through a schedule of fees payable for development time
- Compensate through laboratory and research assistant support
- Compensate through load reduction
- Compensate through registration revenue sharing (or licensing/royalty revenues)
- Some combination of the above

Discussion

Some general observations regarding work and compensation can be drawn from the the preceding paragraphs and from current literature. These should guide further debate.

1. It is very difficult to define and adopt uniform conditions for faculty within the current university structure. Terms that are appropriate for an Arts professor may be totally inappropriate for a researcher in Science.

2. University salary structures are loosely based on "rank" (Assistant, Tenured, Associate, Full). In unionized universities (Univ. de Montréal, York University, etc.) these are defined through collective agreements. In others (such as Queen's and McGill) these are set through collegial negotiation. In neither case are the salary scales uniformly applied across all disciplines. From my observations, moving to a fully regulated compensation plan would seriously undermine the "professional" nature of a university appointment.

3. Distance education institutions could be formed (like Western Governor's University) largely on part-time or fee-for-service compensation practices. From a business perspective, hiring a few senior faculty members and out-sourcing the rest probably makes sense but only in the context of an institution entirely without a research component.

4. Fees for courseware development must be considered separately from course delivery. This would simplify the problem of compensation. Any such model must also budget for professional new-media courseware developers (either in-house or out-sourced). It is

unreasonable to assume that full-time academic staff will acquire sufficient skills to produce competitive on-line materials.

5. There exists a huge gap between the quality and completeness of on-line materials to support classroom teaching (technology-enhanced) and those required for distance learning. I try to describe this to my colleagues as follows. "Imagine that you are giving a course to 40 students or so and for some reason you never attend a single class. How would you construct the materials, notes, readings, library resources, experiments, exercises, advising, testing, grading, etc. such that the entire course could be presented in your absence?"

These comments represent only a few of the central issues surrounding the transformation of a professor's activities and compensation from traditional teaching and research to on-line, distance learning. The literature on this topic is extensive and, in some cases, very critical of the pressure institutions are placing on their academic staff to mount on-line materials. Further discussion and debate on these matters is essential and long overdue.

Comments on Technology Management Structures

As indicated above, most professors and instructors are satisfied with the technical resources and support provided by their institutions. My concerns regarding the development of digital library resources notwithstanding, I would tend to concur that the IT units have, in general, met the challenges of software development and delivery. Most institutions have mounted faculty training units to provide pedagogical, instructional and technical assistance.

The most important initiative for the short term is the implementation and deployment of fully-integrated enterprise systems to support what is in effect, e-commerce capabilities. Toward this end, I would recommend that university IT departments work directly with senior academic management (VP Academic, Curriculum Committees, Deans and Chairs) to be certain that the resources and functions needed to permit seamless delivery of on-line courses and to provide as many services as possible to remote students are being deployed.

At the least, I would propose that each institution appoint a Vice-President of IT drawn from the academic community. This position should be responsible for all information systems and information delivery matters including the development of digital library resources. A minimum framework for the IT structures needed to complement an on-line teaching institution may include,

- Vice-President Information Technology (sits on University Executive Board)
- Associate Vice-President Information Technology (Academic Programs)
- Director New Media and Digital Library Systems (to include training, courseware development, delivery strategies, digital library resources)
- Director of the Office of Distance Learning (to include marketing, contracts, etc.)
- Director of Computing Systems, Voice and Data Communications
- Director of Enterprise and E-Business Systems

With the exception of the Vice-President, these positions are represented in various guises at many of the major institutions. In my opinion, it would be very difficult for an institution to develop a comprehensive, academically sound distance learning strategy without a full voice at the university executive level. Relying on a CIO (normally drawn from the IT workforce) to forge the necessary links with the academic community has not proved to be effective.

Closing Comments

This brief document presents some of the core issues regarding university organization, the nature of work and compensation, and the role of technology in the context of distance learning initiatives within post-secondary institutions. In some cases, I have provided loose recommendations but in general, it is my intent that the paper acts will serve as a guide to further debate and discussion on these complex issues. I have included a brief but current set of references and readings that may help to inform future discourse.

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